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AUTHOR Bacon, Stephen Barcia
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ABSTRACT

In order to evaluate the contention that an Outward Bound course grants individuals the opportunity to learn to live and work with people very different from themselves, 85 minority high school students on scholarships were randomly assigned to one of two groups. Each attended 14 to 20 three-day Outward Bound programs in the summer of 1981. The "homogeneous" group, composed of 25 students, attended Outward Bound in groups composed of 100 percent minority students. The "heterogeneous" group, composed of 60 students, attended Outward Bound in groups that were approximately 30 percent minority and 70 percent Caucasian. The differences between the two groups in dropout rates and pre- and posttest scores on the Self-Report Survey (SRS) were examined. None of the students in the homogenous groups and 15 percent of the students in the heterogeneous groups became motivational dropouts. However, using a multivariate repeated measures analysis on the subscales of the SRS, it was discovered that the students in the heterogeneous groups improved significantly more than the students in the homogeneous groups. The reasons for the differences in dropout rate and SRS scores are discussed, caveats about the research design are offered, and recommendations for further research are made. The following conclusions are offered: (1) heterogeneous groups provide a potentially rich learning environment; and (2) Outward Bound needs to develop new strategies to lower minority dropout rates in ethnically heterogeneous student groups. Data are presented in seven figures. (Author/BJV)

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The Effects of Racially Homogeneous and Heterogeneous Outward Bound Groups on the Self-Report Survey Scores and Drop Out Rates of Minority Students

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Outward Bound USA
384 Field Point Road
Greenwich CT 06830

ABSTRACT

Outward Bound has maintained that the opportunity to learn to live and work with people very different from oneself is one of the important benefits of an Outward Bound course. This study empirically evaluated that contention by randomly assigning high school-aged, minority scholarship students into two groups, each of which attended fourteen to twenty three-day Outward Bound programs in the summer of 1987. The "homogeneous" group, composed of 25 students, attended Outward Bound in student groups composed of 100% minority students. The "heterogeneous" group, which had 60 students, attended Outward Bound in student groups which were approximately 30% minority and 70% Caucasian. The study examined the differences between the two groups in drop out rates and pre and postcourse scores on the Self-Report Survey (SRS).

None of the students in the homogeneous condition and 15% of the students in the heterogeneous condition became motivational drop outs, a difference which was statistically significant. However, using a multivariate repeated measures analysis of variance on the subscales of the SRS, it was discovered that the students in the heterogeneous condition improved significantly more than the students in the homogeneous condition. The reasons for the differences in drop out rate and SRS scores are discussed, caveats about the research design are offered, and recommendations for Outward Bound programming and further research are made. It was concluded that: 1) the results of this study generally support Outward Bound's contention that heterogeneous groups provide a potentially rich learning environment and 2) Outward Bound needs to develop potent new strategies to lower minority drop out rates in ethnically heterogeneous student groups.

Since Outward Bound's inception in the United States in the early 1960's, Outward Bound adherents have argued that the opportunity to meet, gain respect for, and learn to cooperate with different kinds of people are some of the most important benefits of a course. With this end in mind, Outward Bound has maintained a large pool of scholarship funds to enable any person, regardless of financial limitations, to attend wilderness programs. It is believed that the diversity in student mix engendered by these scholarship funds is a vital part of the Outward Bound experience.

This concept of the educational utility of the heterogeneous student group has much innate appeal; there are also numerous anecdotes suggesting that the opportunity to meet different kinds of people has been helpful to many students. However, there are no studies in the Outward Bound literature which provide empirical support for this assumption.

In 1987, Outward Bound USA received funds to conduct an outcome study on a scholarship program for minority students. Fortunately, it was possible to gather the data for that study in such a way that they allowed a partial test of the "benefits of student heterogeneity" assumption described above. This paper reports the results of this partial test. More specifically, it examines the differences in drop out rates and scores on the Self-Report Survey (SRS) between racially homogeneous and heterogeneous student groups.

EXPERIMENTAL DESIGN

The students studied in this project were participants in the Career Beginnings program. The general impact of the Outward Bound component of the Career Beginnings program is discussed in detail in an earlier paper (Bacon, 1987). In order to summarize that study quickly, its abstract is provided below.

> This paper summarizes the results of the empirical evaluation of the Outward Bound component of the 1987 Career Beginnings program. Career Beginnings is a national, privately funded program designed to increase the probability that minority high school youth will either attend college or find good jobs following high school graduation.

The Outward Bound component consisted of providing 85 Career Beginnings students with full scholarships to wilderness challenge programs ranging in length from 14 to 23 days. The effectiveness of the Outward Bound component was evaluated using a pre/post quasi-experimental design. The control group consisted of 98 Career Beginnings students, chosen randomly, who were not interested in attending Outward Bound.

Data were collected by administering the Self-Report Survey (SRS), an instrument with six subscales designed to detect the changes which commonly occur secondary to Outward Bound. 67 experimental subjects and 68 control subjects completed both pre and post testing.

Data analysis using repeated measures analysis of variance revealed that the experimental students were significantly improved ($p < .05$) over the control group on the total scale score, General Well Being, and on three subscales: Self-Confidence, Social Consciousness, and Sociability. Both control and experimental students significantly improved on two other scales--Hopelessness and Self-Deprecation--but neither group was superior to the other. Neither group changed significantly on the final subscale, Achievement Motivation.

The results of the evaluation are discussed and it is concluded that the findings generally support Outward Bound's ability to increase the positive effects of the Career Beginnings program.

The Career Beginnings scholarship students were sent to Outward Bound in one of two formats: either they went in homogeneous groups comprised of all minority scholarship students or they went in heterogeneous groups where three scholarship students were mixed with six to nine regular Outward Bound students. Typically, these "regular" Outward Bound students are middle class Caucasians. Twenty five students were in the homogeneous condition; they were formed into three groups of approximately eight students per group. The sixty students in the heterogeneous condition were assigned to twenty different student groups.

The data analysis has two components: a drop out analysis and a SRS score analysis. The first half of drop out analysis is quantitative and consists of a chi square analysis of the number of students leaving the course under each condition. The second half of the drop out analysis is qualitative and consists of a content analysis of the drop out reports of the Career Beginnings students.

The SRS analysis is a comparison of the mean pre and postcourse scores of the homogeneous and heterogeneous groups on a self-report questionnaire. The SRS is discussed in further detail below under "Instrumentation."

Subjects

Of the 85 Career Beginnings students who went to Outward Bound, only 75 completed the course and only 66 of these 75 filled out the SRS pre and postcourse. All 85 students are included in the drop out analysis

and the 66 participants who completed all testing are used for the SRS analysis. There are complete data sets for 20 of the 25 (80%) of the participants in the homogeneous condition and 46 of the 60 (77%) of the students in the heterogeneous condition.

Table 1:
Demographic Information

	Homogeneous			Heterogeneous		
	N	%	mean	N	%	mean
Age	20		16.9	46		16.9
Years of School	20		11	46		11
Sex						
Male	8	40		28	61	
Female	12	60		18	39	
Race						
Asian	2	10		6	13	
Black	9	45		28	61	
Hispanic	7	35		8	17	
Indian				3	7	
Other	2	10		1	2	

Table 1 presents the demographic information on the two groups. They are identical in terms of "Age" (16.9) and "Years of School" (11); however, they are only roughly equivalent in terms of "Sex" and "Race." More specifically, the largest differences are that the heterogeneous group has a higher percentage of Blacks (61% versus 45%) and a higher percentage of males (61% versus 40%). In spite of the apparent demographic disparities, a chi square analysis showed no significant differences on Sex (chi square = 2.56, df = 2, p = .28) or Race (chi square = 13.43, df = 10, p = .20).

Instrumentation

The SRS is an instrument specifically designed to measure the psychosocial changes which occur secondary to Outward Bound. Its construction and psychometric properties have been described elsewhere (Bacon, 1987). A brief description of the six subscales of the instrument follows.

1) Self-Deprecation: A high score on this variable indicates that the subject has a low self-concept. S/he is worried that others think poorly of him/her and thus seeks the approval of others. This person lacks a sense of self-worth and believes that his/her basic abilities are below average.

2) Sociability: A high score on this variable indicates that the subject has good social skills and relates easily to others.

3) Achievement Motivation: A high score on this variable indicates that the subject is a hard worker. They will tend to persevere in the face of difficulties and value a job well done.

4) Social Consciousness: A high score on this variable indicates that the subject has a concern for and feels connected to others. A high score would also indicate that the individual believes in working for a better world.

5) Hopelessness/Social Pessimism: A high score on this variable indicates that the subject has a pessimistic perspective on the future and believes that personal effort cannot halt society's inexorable slide toward decay and inequity. Conversely, a low score indicates that the individual feels able to influence the social process in a positive way.

6) Self-Confidence: A high score on this variable indicates that the subject is self-confident, self-accepting and has positive self-esteem.

In addition to the subscales above, a total scale, called "General Well Being" was also developed. General Well Being is simply

the linear sum of the six subscales with Hopelessness and Self-Deprecation being scored in a negative direction.

Data Collection Procedures

The Career Beginnings students came from eight different sites in the United States; all data collection occurred at the Career Beginnings sites. Most SRS administrations occurred during group meetings of the Career Beginnings program although in a few instances the SRS was given individually.

An effort was made to gather the data as close to the beginning and the end of the Outward Bound course as possible to minimize the influence of extraneous factors on the results. Pre Outward Bound testing occurred as early as 15 days before the course and as late as three days precourse. Post Outward Bound testing occurred over a slightly broader wider time span ranging from one week postcourse to six weeks postcourse although almost all subjects took the test within three weeks of returning.

RESULTS

As mentioned above, the data analyses can be divided into two categories: the dropout analyses and the repeated measures analyses of variance used for the SRS scales. First we will examine the quantitative drop out analysis, then the qualitative dropout analysis, and finally conclude with the SRS analyses.

Quantitative Drop Out Analysis

Table 2 shows the results of the chi square analysis of the dropout rates of the homogeneous group and the heterogeneous group. Ten students in the heterogeneous condition dropped out of their Outward Bound courses. However, as one was a medical drop, only 9 areincluded in the chi square analysis. No students in the homogeneous condition dropped out. The difference between the drop out rates of the two groups is significant at the $p < .05$ level.

Table 2: Chi Square Analysis

	Staying	Leaving
Homogeneous	25	0
Heterogeneous	50	9

Chi Square = 4.518
Df = 1
$p < .05$

Qualitative Drop Out Analysis

When a student leaves an Outward Bound course for motivational reasons, it is standard procedure for the staff to fill out a drop out report; in some cases, the students are asked to complete a comparable form. In terms of the nine Career Beginnings students who dropped out, nine staff reports and three student reports were collected. By content

analyzing these reports, it was possible to determine both the student's primary explanation for why he was leaving and the staff members' hypotheses about the reasons for dropping out. In the six cases where the student report was not available, the staff report contained sufficient behavioral observations and/or direct quotes from the student to estimate the student's perspective on his reason for leaving.

Table 3: Reasons for Leaving

	Inadequate Orientation	Never wanted to come	Homesick, Scared, Aversion	Other
Students	3	2	3	1
Staff	1	2	5	1

Table 3 displays the results of the content analysis. The meaning of each category in the table is best illustrated by a quote or two from the relevant reports. Improper orientation was selected for phrases such as: "Where are the buildings, the ropes course, and the kitchen?" and "she had not understood what the course would be like, i.e., she thought there would be cabins, food cooked for her, etc." Never wanted to come was selected for phrases such as: "Never wanted to come to begin with; refused to do program elements and refused to invest in group." And "Did not want to be on the course from the beginning. From Day 1 (he) spoke constantly about going home." Homesick, Scared, Aversion was selected for phrases such as: "(we tried to get her to eat but her anxiety about being there was such that) she gagged on food, vomited food, and hid food in her clothing" and "he disliked and hated backpacking; said his legs were used to flat paved roads, not this mountain stuff." The final category, Other, contains a girl who was doing well on the course; however, her mother missed her so much that she called up and talked the girl into coming home!

Examining Table 3 reveals that the reasons for leaving are fairly evenly distributed with a slight emphasis on the "Homesick/Scared/Aversion" category. The primary difference between the student and staff explanations was that the students attributed more problems to poor orientation and the staff believed that fear of and aversion to the course accounted for more dropping out.

A final point, and a rather important one, is that the staff noted that in two cases (two pairs), the students incited each other to leave. In both cases, the staff believed that they might have retained at least one student if there had not been a peer arguing for and modeling dropping out.

SRS Analyses

The mean pre and postcourse SRS scores of each group were compared using repeated measures analysis of variance (SPSSPC+). The six SRS subscales were first analyzed as a group using a multivariate repeated measures analysis of variance. This multivariate analysis is presented in Figure 1, entitled "General Well Being." The remaining six figures represent the six subscales, all of which were analyzed using univariate repeated measures analysis of variance.

In addition to the figures, there are two tables per SRS scale. The tables report the results of testing three effects--GROUP, TIME, and the TIME BY GROUP INTERACTION (TBGI)--for statistical significance[1]. The "Y" or vertical axis of each figure represents the mean SRS score and the "X" or horizontal axis represents time. The

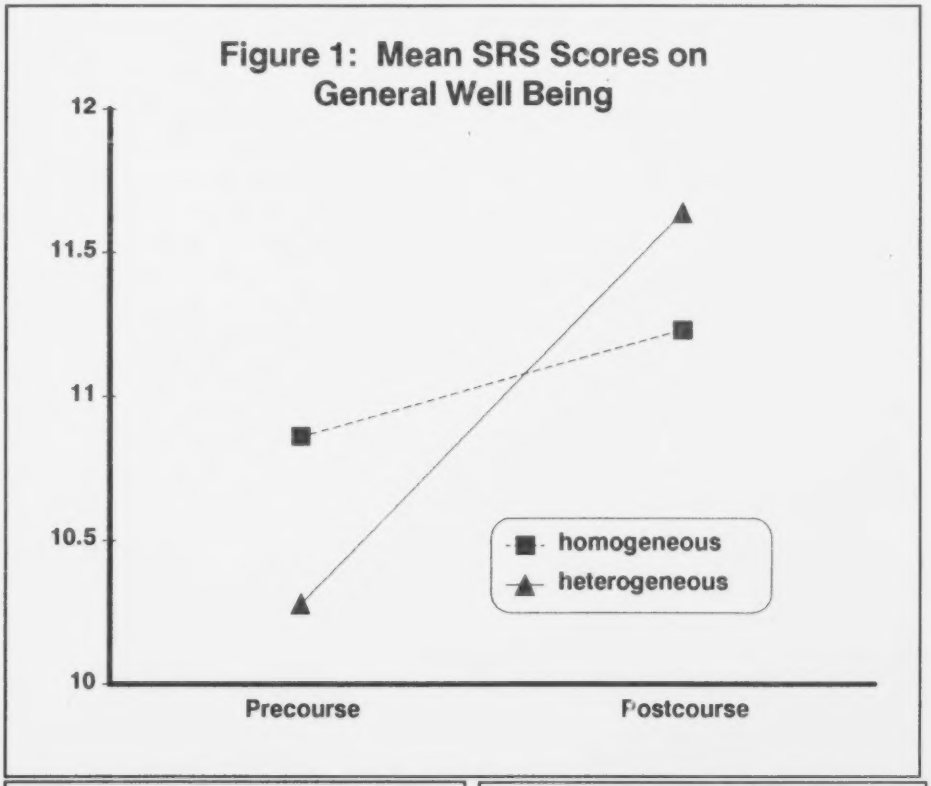

Table 4A: F-table (between) for GENERAL WELL BEING

	Value	App. F	Hyp. DF	Err. DF	Prob
GROUP	.0542	.5334	6.0	59.0	.78

Table 4B: F-table (within) for GENERAL WELL BEING

	Value	App. F	Hyp. DF	Err. DF	Prob
TIME	.3356	3.300	6.0	59.0	.007
TBGI	.2244	2.797	6.0	59.0	.018

possible range of each scale is from 1 to 5 with the exception of General Well Being which can range from -6 to 18.

General Well Being

Figure 1 reveals that both the homogeneous and the heterogeneous groups improved on the composite variable, General Well Being;[2] however, the heterogeneous group achieved relatively greater gains. Table 4B shows that the improvements of both groups over time were statistically significant; it also shows that the heterogeneous group improved significantly more than the homogeneous group.

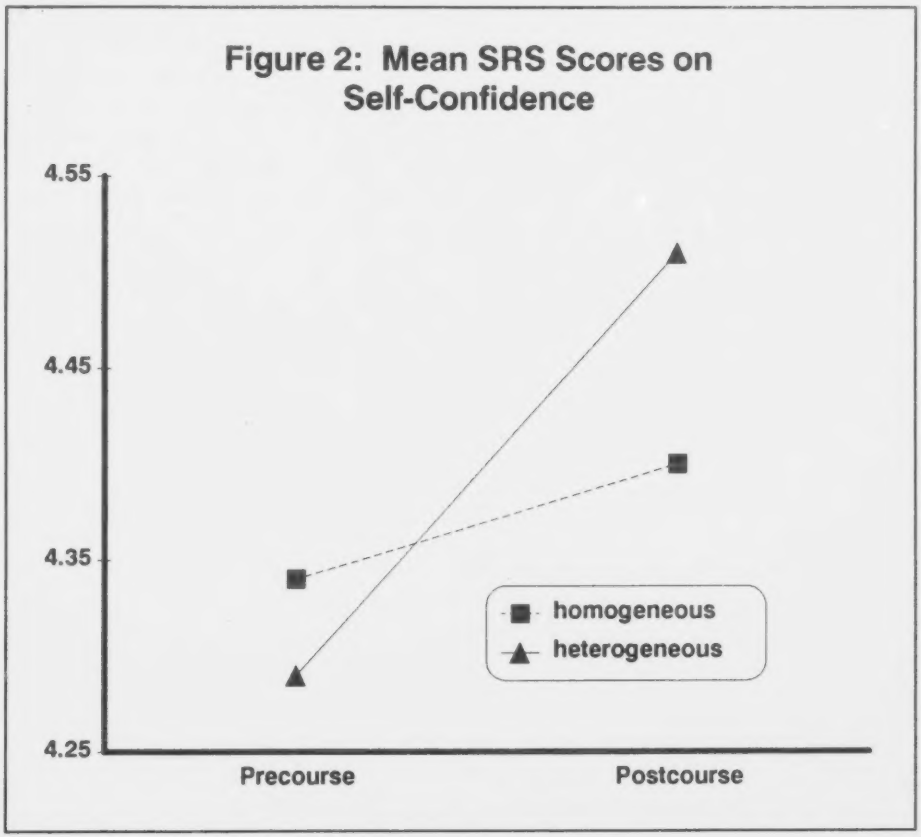

Table 5A: F-table (between) for SELF-CONFIDENCE

Source	SS	DF	MS	F	Prob
Error	26.95	64	.42		
GROUP	.03	1	.03	.08	.782

Table 5B: F-table (within) for SELF-CONFIDENCE

Source	SS	DF	MS	F	Prob
Error	7.06	64	.11		
TIME	.55	1	.55	5.02	.029
TBGI	.17	1	.17	1.55	.217

Self-Confidence

Figure 2 reveals that both groups increased on this scale with the heterogeneous group apparently increasing more. Examining Tables 5A and 5B shows that the only effect which is statistically significant is TIME; in other words, both groups improved significantly but neither outdid the other.

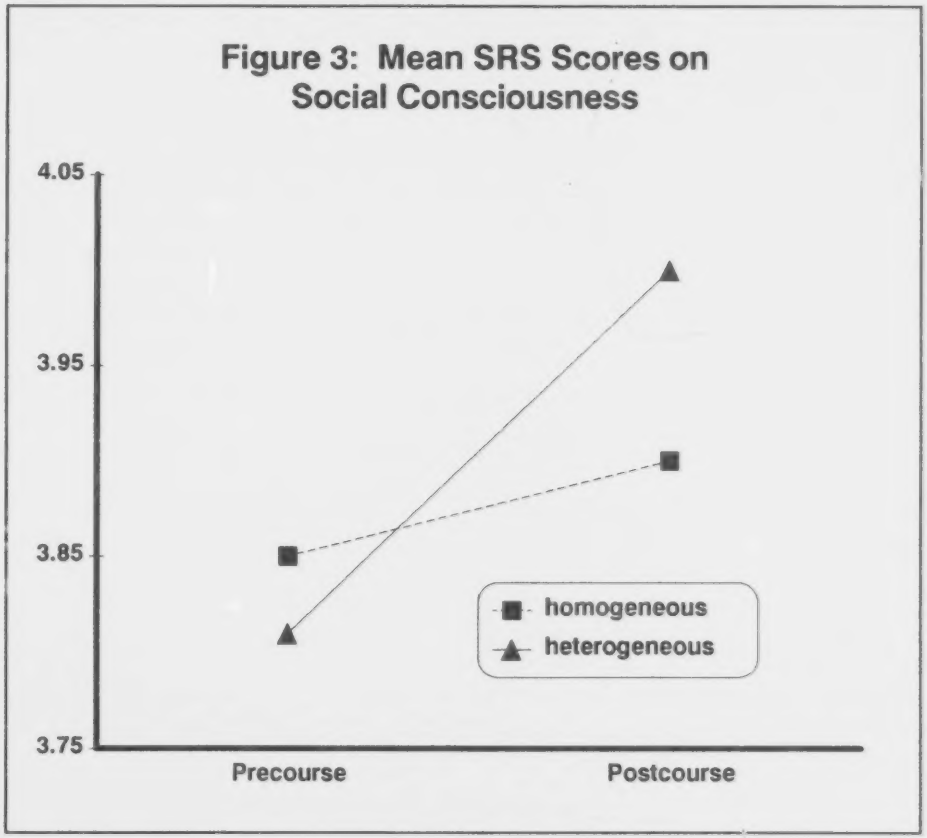

Table 6A: F-table (between) for SOCIAL CONSCIOUSNESS

Source	SS	DF	MS	F	Prob
Error	20.49	64	.32		
GROUP	.09	1	.09	.29	.594

Table 6B: F-table (within) for SOCIAL CONSCIOUSNESS

Source	SS	DF	MS	F	Prob
Error	10.34	64	.16		
TIME	.60	1	.60	3.71	.059
TBGI	.23	1	.23	1.45	.233

Social Consciousness

Figure 3 reveals that both groups improved on this variable with the heterogeneous group apparently gaining more. However, an examination of Tables 6A and 6B shows that none of the apparent gains were statistically significant.

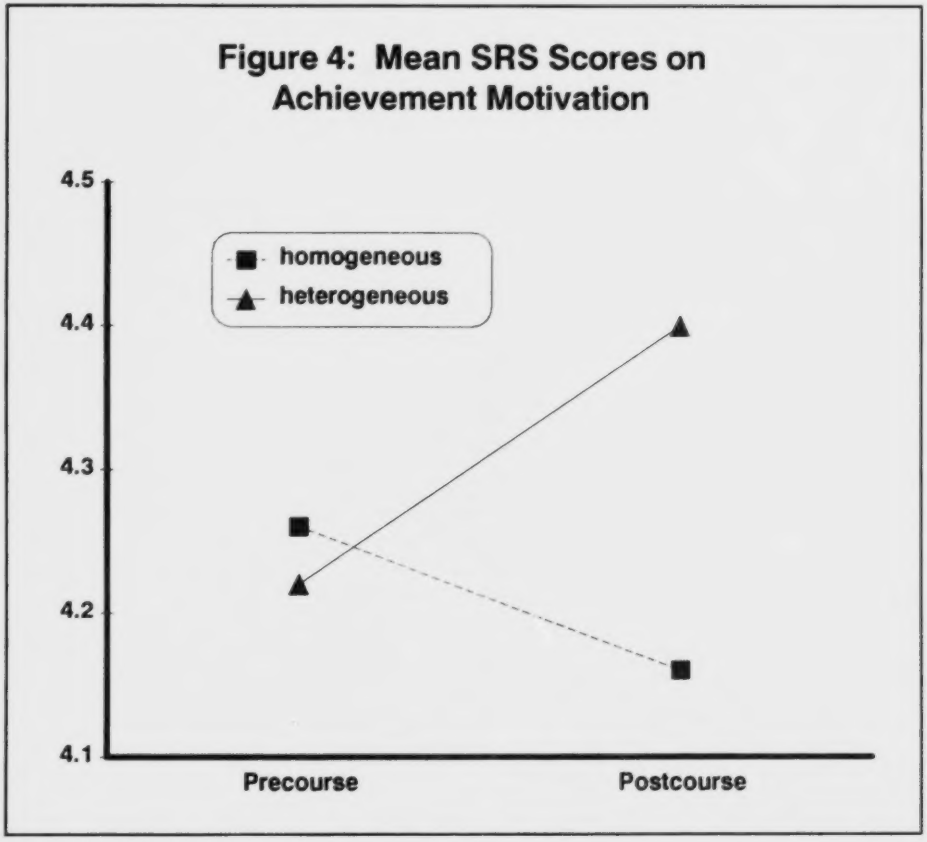

Table 7A: F-table (between) for ACHIEVEMENT MOTIVATION

Source	SS	DF	MS	F	Prob
Error	23.58	64	.37		
GROUP	.26	1	.26	.70	.404

Table 7B: F-table (within) for ACHIEVEMENT MOTIVATION

Source	SS	DF	MS	F	Prob
Error	9.09	64	.14		
TIME	.04	1	.04	.30	.588
TBGI	.54	1	.54	3.79	.056

Achievement Motivation

Figure 4 shows that the homogeneous group declined slightly on this variable while the heterogeneous group enhanced their scores. Tables 7A and 7B reveal that the size of the effect just missed statistical significance.

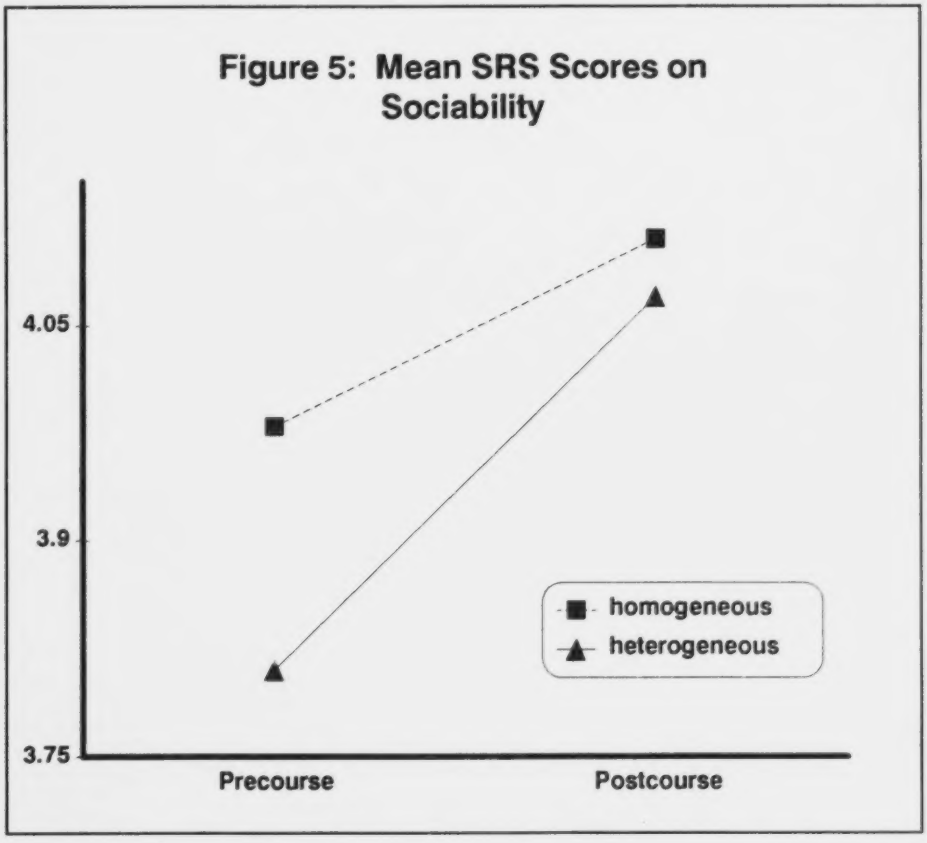

Table 8A: F-table (between) for SOCIABILITY

Source	SS	DF	MS	F	Prob
Error	33.71	64	.53		
GROUP	.34	1	.34	.64	.426

Table 8B: F-table (within) for SOCIABILITY

Source	SS	DF	MS	F	Prob
Error	8.35	64	.13		
TIME	1.05	1	1.05	8.05	.006
TBGI	.11	1	.11	.84	.362

Sociability

Figure 5 shows that both groups increased their scores on Sociability over time. Tables 8A and 8B reveal that the only effect which is statistically significant is TIME. Neither group was superior to the other.

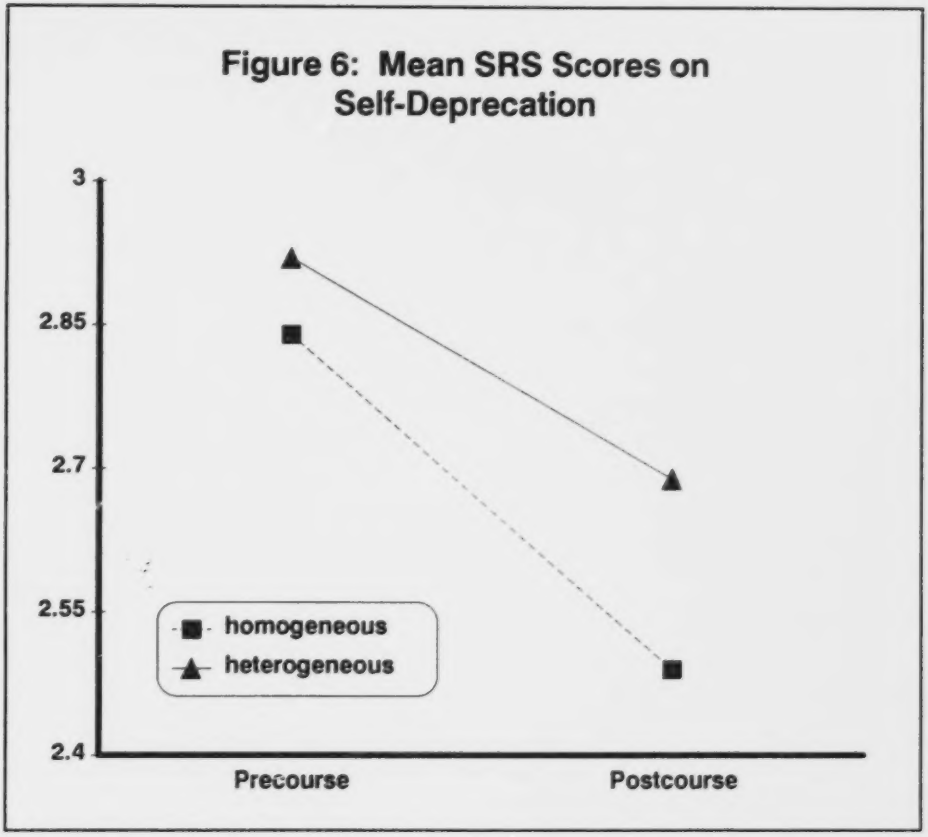

Table 9A: F-table (between) for SELF-DEPRECATION

Source	SS	DF	MS	F	Prob
Error	66.26	64	1.04		
GROUP	.53	1	.53	.51	.477

Table 9B: F-table (within) for SELF-DEPRECATION

Source	SS	DF	MS	F	Prob
Error	18.43	64	.29		
TIME	2.32	1	2.32	8.06	.006
TBGI	.08	1	.08	.28	.601

Self-Deprecation

Figure 6 shows that both groups experienced a sharp decline on this variable over time. Tables 9A and 9B reveal that the decrease in scores is statistically significant and that neither group is superior to the other.

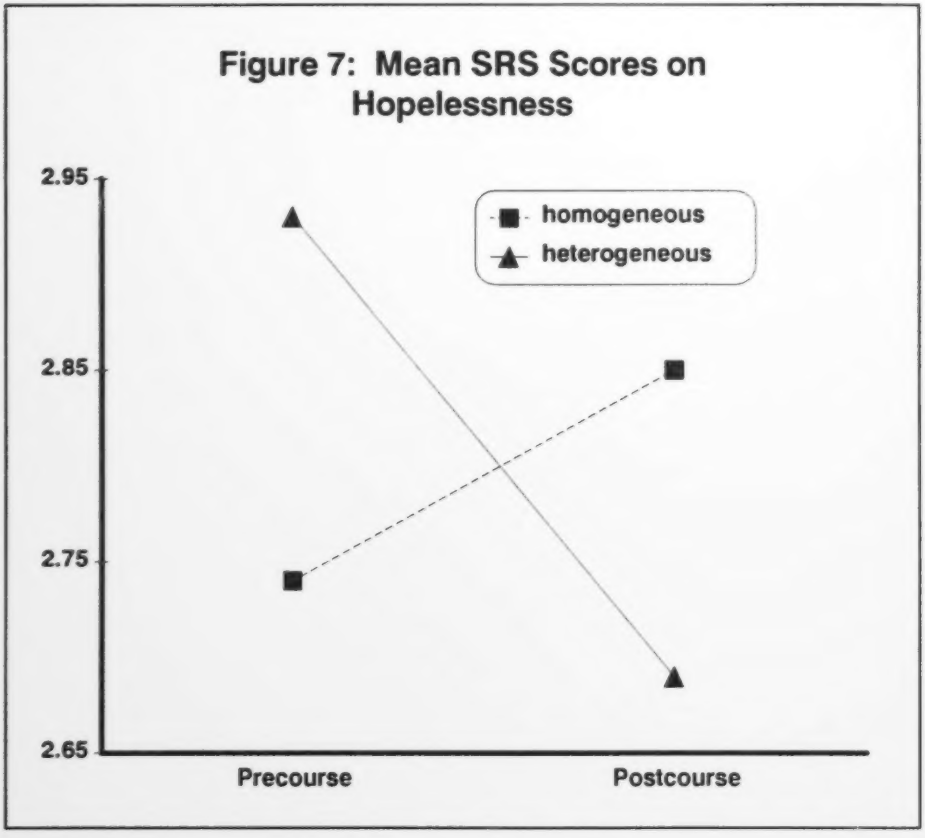

Table 10A: F-table (between) for HOPELESSNESS

Source	SS	DF	MS	F	Prob
Error	36.31	64	.57		
GROUP	.01	1	.01	.02	.885

Table 10B: F-table (within) for HOPELESSNESS

Source	SS	DF	MS	F	Prob
Error	13.76	64	.21		
TIME	.10	1	.10	.47	.496
TBGI	.85	1	.85	3.98	.050

Hopelessness

Figure 7 shows that the heterogeneous group declined rather sharply on this variable while the homogeneous group experienced an increase. Tables 10A and 10B reveal that the only statistically significant effect is TBGI; in other words, the improvement of the heterogeneous group on this variable is significantly better than the changes seen in the homogeneous group.

Summary of Results

The students in the homogeneous group were clearly superior to the students in the heterogeneous group in terms of drop out rate; their 0% rate was better than the 15% rate registered by the heterogeneous students at the $p < .05$ level. The content analysis of the drop out reports showed that there were a variety of reasons for leaving Outward Bound, with the students emphasizing poor orientation and a dislike of the course and the staff emphasizing home sickness, lack of courage, and a general aversion to the Outward Bound experience.

A multivariate repeated measures analysis of variance--using the six SRS subscales at dependent variables--revealed that the students in the heterogeneous condition achieved better overall psychological improvements ($p = .018$) than the students in the homogeneous condition. On the univariate analyses of the specific subscales, the heterogeneous students were significantly superior ($p = .05$) on Hopelessness and just missed statistical significance ($p = .056$) on Achievement Motivation.

Both groups showed significant overall improvements as a result of the Outward Bound experience (multivariate $p = .007$) and both groups achieved equal gains on the subscales Sociability ($p = .006$), Self-Deprecation ($p = .006$), and Self-Confidence ($p = .029$).

DISCUSSION

The significance of the chi square drop out analysis suggests that students in the heterogeneous condition were at higher risk of dropping out than students in the homogeneous condition. The most straight forward explanation for this finding is that placement with students who are significantly different from oneself--i.e., placing a few minority students in a predominantly Caucasian group--inhibits the ability of the minority students to bond to the group. This, in turn, raises the stress level of the minority students to the point where more of them are likely to drop out.

The student and staff explanations for dropping out--poor orientation, aversion to the course, homesickness, and so on--are familiar reasons for leaving Outward Bound. Wade (1987) reports that approximately 1% of the almost 18,000 students who attend Outward Bound annually become motivational drop outs for these sorts of reasons. What is significant in this study, however, is that the stress engendered by heterogeneous grouping was such that the drop out rate of that group increased to 15%. The ever present reasons for leaving Outward Bound became compelling enough to cause a high drop out rate only when they were coupled with the extra stress of heterogeneous grouping.

A particularly interesting factor is the staff observation that in four cases the students encouraged each other's desires to leave. It is quite possible that in these cases, instead of integrating with the main group, the potential drop out students formed a subgroup, a clique which became progressively more distant from the main group as time passed. It is difficult enough for an individual minority student to join a predominantly Caucasian group. Complicating this task by being in an environment divided into majority and minority cliques adds even more stress to the situation.

The SRS Analysis

While the heterogeneous students were at higher risk of dropping out, they also had significantly greater pre/post personality score gains on the SRS. The simplest explanation for this finding is the one mentioned in the introduction: Outward Bound has argued for years that exposure to different kinds of people is conducive to personal growth. It may be more stressful to be mixed in with people different than oneself, but it is also an excellent opportunity for learning.

Examining the subscales individually provides some understanding about why heterogeneous grouping was beneficial. Usually only subscale differences which are statistically significant can be discussed; however, the significance of the multivariate analysis, which is graphically illustrated both in Figure 1 and by the fact that the heterogeneous group out performed the homogeneous group on five of the six subscales, argues that it would be appropriate to interpret all of the positive findings. However, even with the support of the multivariate results, only a conservative interpretation will be offered with the discussion focused on the meaning of the subscales which had the greatest disparities in scores: Hopelessness ($p = .05$) and Achievement Motivation ($p = .056$).

Interpreting the differences on the Hopelessness subscale is fairly straight forward. Since Hopelessness assesses both personal and social Hopelessness, it is likely that successful integration into a predominantly Caucasian group increased the minority students' expectations that they can fit into a society dominated by Caucasians. This finding is further supported by the superiority of the heterogeneous group's scores on the Social Consciousness subscale. This subscale partially measures one's willingness to work for social change and improvements, a willingness which is enhanced by the feeling of social success achieved through integration into a Caucasian group.

The nearly statistically significant difference on the Achievement Motivation subscale requires a more complex interpretation. Achievement Motivation measures the students' willingness to work hard for a goal and to persevere in the face of obstacles. This construct is related to self-efficacy with its emphasis on only trying a certain behavior when: 1) a person has confidence that he can perform the behavior and 2) there is equal confidence that performing the behavior will actually result in the achievement of one's desires. In terms of achievement motivation, self-efficacy theory argues that one will only persevere when convinced that the perseverance will make a difference in the outcome.

On an Outward Bound course, most students master difficult challenges. This type of success should increase perseverance in general. What is special about the success experiences of the heterogeneous students is that they occurred in a predominantly Caucasian social environment. This is a vitally important learning for minority students whose past experience often suggests that no matter what one does, or how hard one tries, it is difficult to get ahead in a society dominated by a white middle class. In short, the heterogeneous students not only learned to persevere, they learned that perseverance led to success in a Caucasian-dominated environment.

In this light, it is significant that the superiority of the heterogeneous group on Self-Confidence was not as marked as their superiority in Achievement Motivation. The

Outward Bound course gave both groups success and mastery experiences and hence enhanced both group's sense of empowerment and self-esteem. However, gaining the ability to maintain this sense of self-esteem in a middle class environment was primarily limited to the heterogeneous students. In sum, both groups gained in self-confidence, but the ability to put that confidence into practice--to try harder and to persevere in the face of the kind of obstacles found in a Caucasian-dominated society--was more available to the heterogeneous group.

Research Caveats

In the midst of these interpretations, it is important to offer a number of qualifications--cautions against being too confident in the validity of these research findings. The need for qualifications primarily stems from the limitations of the experimental design.

First of all, this study was post hoc; that is, the data were primarily collected to evaluate the Outward Bound component of the Career Beginnings program, not to test the hypothesis that the heterogeneous student group would improve more than the homogeneous group. This led to an incomplete test of the heterogeneous/homogenous hypothesis. For example, the heterogeneous groups almost always consisted of three minority students, a number which usually meant that the student groups had a 30% minority student population. What would have happened if it had been only one minority student per group? What would have happened if it had been 50% minority? In addition, all the students were approximately the same age and had the same educational level. The same study conducted with fourteen-year-olds or nineteen-year-olds might have yielded other findings.

Lack of any follow-up limits these results to differences that occurred within one to three weeks of the end of the course; perhaps a very different picture would emerge if measurements were taken three or six months postcourse.

The students who dropped out were discarded from the analysis. The equivalence of the groups, previously established by random assignment, was changed by this decision. For example, one can argue that the 85% of the students retained in the heterogeneous group were the top 85% of that group; they were the ones who could handle the stress of an Outward Bound course. Perhaps their superiority on the SRS testing was due to having the "worst" of the heterogeneous students eliminated from the analysis.

Logical as this may seem, the mean precourse scores of the heterogeneous group are all lower than the mean precourse scores of the homogeneous group. Throwing out the "bottom" 15% of the heterogeneous group does not appear to have resulted in a group which was superior to the homogeneous group at the precourse testing point. While this may be true, it still remains possible that the nonequivalence of the groups somehow interfered with the validity of the conclusions in a subtle manner.

Another threat to the validity of the conclusions arises from the number of student groups in the homogeneous condition. In the heterogeneous condition, the students experienced twenty different pairs of staff. In the homogeneous condition, there were only three pairs. Perhaps one or more of the homogeneous instructional teams had poor staff, thereby depressing the improve-

ments in scores of the homogeneous group. While this is certainly possible, it is somewhat unlikely, given that all the homogeneous instructional pairs--and the students in the homogeneous groups--reported that they had excellent courses.

The SRS is a newly developed instrument. While its reliability is generally acceptable, its validity and its applicability to minority students are open questions. It is possible that the statistically significant differences are artifacts of a psychometrically weak instrument.

Finally, it can be argued that the condition "homogeneous group" is a misnomer. All of the homogeneous groups were actually ethnically heterogeneous; that is, they were a mixture of Blacks, Hispanics, and so on. There were no literally homogeneous groups; there were only "all-minority" groups. The actual effects of complete racial homogeneity have not been tested by this study. While this is certainly true, it can also be argued that the students in the homogeneous groups--regardless of their differences--did experience a relatively homogeneous group. They were all Career Beginnings students; their ages and education levels were identical; they were highly similar in terms of socioeconomic status; and they were all from an urban environment.

Clearly these factors are serious threats to the internal and external validity of this research. In that sense, the findings of this study are only suggestive and not conclusive. Yet, in spite of all these caveats, the basic results remain convincing simply because they align so naturally with common sense expectations. It is logical that the increased stress of heterogeneous grouping resulted in a higher drop out rate. And Outward Bound's contention that heterogeneous groups provide a more powerful learning environment is just as logical.

Recommendations and Conclusions

The results of this study generally support the Outward Bound contention that more learning can occur when students are placed in heterogeneous groups. However, this increase in learning may not be worthwhile if it results in high drop out rates. If, for example, 7 of the 9 students who dropped out would have stayed if they had been in a homogeneous group, perhaps the overall amount of learning would be increased by placing everyone in homogeneous groups.

This recommendation has a number of serious problems. First, homogeneous groups are not always possible. Second, it smacks of segregation and racism. Third, it deprives the more stress-resistant students of the opportunity to gain by being exposed to a heterogeneous group. In conclusion, a recommendation to use homogeneous groups is not appropriate at this time. That being true, it becomes critical for Outward Bound to develop additional strategies for lowering minority drop out rates.

Outward Bound has traditionally emphasized minimizing drop out rates via providing minority students with an excellent precourse orientation. It is believed that the differences between the urban and wilderness environments and the relative lack of pro-wilderness values in minority subcultures makes such orientations critical.

This study found that even with both groups receiving the same orientation, remarkably different drop out rates--0% as opposed to 15%--can be achieved. This differ-

ence is so large, and the explanation for it--difficulties encountered in group formation in the heterogeneous patrols--so compelling, that one can wonder if the precourse orientations have ever been that important! In other words, perhaps most of the variance in drop out rates is accounted for by group bonding factors and a relatively low amount is determined by lack of knowledge about wilderness activities and environments.

However, this study was not designed to provide an empirical test for the orientation versus group bonding question; hence, the speculations above must remain tentative until confirmed. It is also important to emphasize that these speculations are not intended as an attack on the practice of orienting minority students; certainly their general lack of acquaintance with the wilderness environment suggests that orientations are useful. It might be wise, though, to shift the emphasis of the orientation from an "acquainting minority students with the Outward Bound environment and activities" mode to a "giving them skills to integrate into a heterogeneous group" mode.

Of course, the primary place to work with group bonding issues is on the course itself. Perhaps the first place to start is to experiment with different ratios of minority to Caucasian students. An even balance (50%-50%) could be beneficial in that it might allow everyone to have a group to bond with easily; conversely, it might create two strong subgroups that would be difficult to integrate. This idea also ignores the fact that, except in the case of certain scholarship programs, it is often difficult for Outward Bound to find five minority students for a single student group.

Another way of altering the student mix is to only have one minority student per student group. This eliminates the potential danger of having the minority students join together to encourage each other to drop out. However, being markedly different from all other students is likely to increase the solo minority student's stress level to unacceptable heights.

A variation on this "have one minority student per group" strategy is possible on some Outward Bound courses. Three minority students can be assigned to each student group. The instructor can then structure the course so they are encouraged to pair with Caucasian students as opposed to forming a minority sub clique. For example, on a canoeing course, minority/Caucasian pairs could be assigned as paddling partners; on a backpacking course, the minority students might be assigned to separate tarp and cooking groups. This compromise approach would encourage integration and yet still provide enough contact with other minority students to lower the stress level.

These speculations about group mix are interesting yet inconclusive. While future findings may demonstrate that altering the student mix is an effective way to lower drop out rates, at the moment, there are no compelling arguments to recommend one ratio over another. Besides, from a more pragmatic perspective, it is unlikely that Outward Bound will regularly have enough minority students to custom design the mix of each student group.

This implies that the main effort to lower drop out rates must rest on the ability to train instructors to integrate minority/Caucasian groups more effectively. Some training with instructors has already occurred, particularly in the area of sensitizing them to the backgrounds of minority students, helping them understand street lan-

guage, and so on. While this is valuable, such training may be emphasizing the wrong thing. It is useful for the instructor to have a more effective individual relationship with a minority student, but critical for that minority student to integrate successfully into the peer group. At Outward Bound, it is often said that the course worked "in spite" of the instructor. This is so often true because the structure of the course and the effects of the peer group are so reliable and positive. Train the instructor to make the group work; only secondarily train him to relate more effectively to minority students.

Finally, there is the most obvious recommendation: hire more minority staff members. There is little question but that having a person of color in a leadership role on the course would lower the stress level of the minority students and provide them with a positive role model.

In addition to programmatic recommendations for Outward Bound, it is also possible to offer some recommendations for further research in this area. First, this study has a major flaw in that it completely lacks follow-up; perhaps all of the differences found herein would not be sustained several months postcourse. It is recommended, therefore, that this study be replicated with a follow-up included. Furthermore, one would have more confidence in the results if the outcome measures were diversified and strengthened; more specifically, it would be useful to include behavioral measures, collateral reports, and self-report questionnaires with established and strong psychometric qualities. It would be helpful if the study tested the effects of different types of orientations, experimented with a variety of student mixes, and provided a truly homogeneous--i.e., 100% one race--group.

It also would be interesting to look at how homogeneous and heterogeneous groupings affect the drop out rates and psychosocial outcomes of Caucasian students. Who benefits more from a heterogeneous group, minority students or Caucasian students? What would happen if the Caucasian students were in the minority?

In conclusion, this research has essentially supported Outward Bound's long standing contention that heterogeneous groups provide opportunities for student learning. But the cost paid for such groupings--a drop out rate fifteen times the national average--is a heavy price indeed. Outward Bound should continue to use such groupings, but there is a graphically demonstrated need--a moral imperative--to do whatever is necessary to minimize the minority drop out rate.

REFERENCES

Bacon, Stephen (1987). The Career Beginnings Outward Bound component: An empirical evaluation. (Research Report). Greenwich, CT: Outward Bound USA.

Wade, Ian (1987). 1986 annual safety report: Outward Bound USA. (Technical Report). Greenwich, CT: Outward Bound USA.

FOOTNOTES

1. "Statistical significance" estimates the probability that the difference between two means could have occurred by chance. If the mean scores are similar, it is quite likely that their difference could have

occurred accidentally and have little experimental meaning. For example, in Table 4A on page 9, the probability--or "p"--of the group effect occurring via chance was p = .78 (seventy eight chances in a hundred). Since this probability is high, it is assumed that the differences between group scores is random and meaningless. The scores of the two groups are not different in a statistically significant manner.

How low does the probability need to be to achieve statistical significance? There is no absolute answer to this question but social scientists have adopted a convention of using .05 as the criterion for statistical significance. In other words, if the difference in the average scores of two groups is large enough that it could only have occurred by chance one time in twenty or less, then it is inferred that the differences are purposeful instead of random.

For example, looking at Table 4B on page 9, one finds two probabilities less than .05: .007 and .018. Both of these are considered statistically significant; they each imply that something--e.g., assignment to one condition or another--was affecting the students' scores in a nonrandom manner.

Once statistical significance is grasped, it remains to understand the factors being tested: GROUP, TIME, and the TIME BY GROUP INTERACTION (TBGI). GROUP is a factor that measures whether one group is always different from another, whether it is always higher or lower than another. In Table 4A, the effect of GROUP is not statistically significant; in other words, there are no differences between the homogeneous group and the heterogeneous group across the course of the research.

The TIME effect works quite differently; it compares all of the pretest scores with all of the posttest scores regardless of group membership. The statistical significance of p = .007 for TIME seen in Table 4B means that all of the students' scores, whether they were in the homogeneous or heterogeneous group, went up significantly over time.

The final effect, TBGI, is the most interesting for this research. It measures whether the students changed more because they were in a certain group. In other words, it determines whether assignment to one condition or the other had a significant effect. Examining Table 4B once again, one sees that the TBGI effect had a statistically significant probability of .018. Participation in the heterogeneous versus homogeneous group did make a difference for these students.

2. The results which are graphed are the variable "General Well Being" which is a linear combination of the six subscales. However, the F-Tables under the graph (Tables 4A and 4B) report the multivariate F tests of the six subscales, not the univariate tests of the linear variable "General Well Being." The graph of the linear variable is offered to provide a quick overview of the data. It was impossible to plot the multivariate representation of all six subscales on one graph as different weights are assigned to each variable to test different main and interaction effects. The multivariate statistic is estimated by Hotellings procedure.

OUTWARD BOUND USA

384 FIELD POINT ROAD
GREENWICH, CT 06830
(203) 661-0797